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ABSTRACT

The International Standards Organization (ISO) has developed standards to provide a uniform framework for quality assurance in organizations' products and services. Commonly referred to as ISO 9000, these standards focus on achieving and sustaining the quality of the product or service produced to continuously meet purchasers' needs, and give management and purchasers confidence that the intended quality will be achieved. To satisfy ISO 9000 standards requires extensive documentation of processes and procedures, and the technical writer will play a key role in writing process and procedure documentation and in creating and teaching areas of product and process documentation. The technical writer may work in conjunction with management to prepare a strategic plan for obtaining ISO 9000 certification, develop quality standards for documentation, define what information is needed from colleagues and gather it into ISO 9000 standards format, prepare visual aids and materials for training presentations, assist in training employees in proper inspections and documentation, prepare a Quality Manual, participate in internal audits of documentation procedures, respond to the official registration audit, and review and revise written policies and procedures as needed. Competencies of a technical writer include writing ability, interpersonal skills, critical thinking skills, and research skills. (Contains 15 references.) (JDD)

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The Technical Writer in the Global Marketplace

By Deborah Washburn Ronayne
March 22, 1994

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By Deborah Washburn Ronayne

March 22, 1994

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March 21, 1994

The Technical Writer in the Global Marketplace

The technical writer may best be described as one who puts "scientific and technical information into readily understandable language," according to Alred, Oliu and Brusaw (1). The growth of technical and professional writing has evolved with the shift away from labor-intensive manufacturing toward an economy driven by information-intensive high technology (Alred, Oliu and Brusaw vii). This shift has occurred not only in the United States, but in the European Community as well, whose 12 members include Belgium, Britain, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain (Foreign Policy Assoc. 20). As part of its drive toward unification, the European Community has adopted a set of five universal quality system standards which will provide a uniform framework for quality assurance (Hockman 35). These standards, developed by the International Standards Organization in Geneva, are commonly referred to as ISO 9000 (Levine 58). The ISO 9000 standards list three primary objectives for organizations:

1. Achieve and sustain the quality of the product or service produced to continuously meet the purchaser's needs.
2. Give management confidence that the intended quality will be achieved.
3. Give the purchaser confidence that the intended quality will be achieved (Borthick 23).

More than 35 countries worldwide have adopted these standards whereby organizations will implement a quality management system to satisfy ISO 9000 contractual standards and obtain and maintain "certified" or "registered" status (Hockman 35).

In the United States, more and more companies are seeking certification due to pressure from overseas customers (Hockman 36). However, in December, 1992, only 621 U.S. companies of various sizes were registered compared to 20,000 companies from the European Community countries (Miller 6). Edmond Weiss reports that few firms document themselves extensively enough to satisfy ISO 9000 registration (238). In the global marketplace the technical writer will not only function to write and manage process and procedure documentation related to ISO 9000, but will play a key role in the developing, creating and teaching areas of product and process documentation as well.

While there is no official procedure for obtaining certification, the registration process can be broken down into six general steps beginning with management's commitment and a strategic plan (Weiss 235). This initial step may include a preliminary audit which will reveal what needs to be done to install a quality management system and what the absence of such a system costs in terms of scrap, rejects, lost business and general overhead (Rothery 51). The technical writer may work in conjunction with management to prepare the overall strategic plan and prepare individuals and departments for the steps involved. Specifications for raw materials from vendors should be examined, along with a system for monitoring and controlling defects and rejections. At least one person must be assigned to the project and a written Quality Policy must be prepared, which the ISO defines as "the overall quality intentions and direction of an organization as regards quality, as formally expressed by top management" (Weiss 235). The technical writer will play a key role developing quality standards for all product-development and customer-user documentation (Weiss 238). Collaboration, or consulting with colleagues, is essential in beginning the task of certification. The technical writer should "willingly seek information from colleagues and be prepared to reciprocate" at this phase in the

project (Burnett 101). If a company wants to conform to ISO 9000 requirements, all areas of the organization will most likely be affected and must document their departmental contributions to the quality effort (Borthick 24). The technical writer will define what is required and gather the information into ISO 9000 standards format.

Once the strategic plan has been developed and the policy is established, training employees and arranging quality procedures should follow (Weiss 235). Employees must be directed to follow the new guidelines as set forth in the Quality Policy. Training may include videos, lectures, case studies and plant walk arounds (Rothery 238). Here technical writers may serve not only in preparing visual aids and materials for presentations but also in the overall training. Technical writers will write, teach and consult with employees about quality and ISO 9000, and the company's immense documentation needs (Weiss 238). For example, incoming material which was previously shelved in inventory until needed may now require extensive lab testing before it is officially accepted from the vendor. In some cases, finished product may require outside testing to certify it meets the various specifications established by the customer. Whatever direction the procedures may take, the technical writer will train individual employees and departments in the proper use of inspection procedures and completion of documentation for all incoming and outgoing materials. Employees must be trained to understand the Quality Policy at this point and how it relates to their individual function within the company.

In addition to following guidelines in the Quality Policy, employees should be trained in readability, or in demonstrating a clear style of writing (Sparrow and Cunningham 51). The technical writer can introduce a checklist of writing elements to improve both individual and group writing efforts (Sparrow and Cunningham 61). The checklist should include language, focus, mechanics, format, supporting detail, and constancy to the assignment (Sparrow and Cunningham 53). Clarity and brevity are sure to make the ISO 9000 documentation successful in the attempt at certification, whereas

illegible or poorly written documentation can hinder it. Proper training with tagging or labeling systems and control logs will facilitate the audit with the registrar and provide a functional quality program.

When training is complete, the company must then implement the new procedures and document them (Weiss 235). The key document is the Quality Manual (Rothery 131). The manual will not only provide guidance to the entire staff, but also be the basis of the registrar's audit (Weiss 235). Brian Rothery recommends the following approach in preparing a Quality Manual:

1. Describe company services.
2. Analyze the processes that the company employs and prepare detailed instructions in the form of procedures for the instruction of staff.
3. Design and implement controls, audits and reviews.
4. Cross reference the procedure's section to the company's procedures manual.
5. Use ISO 9001, 9002 and 9003 standards where necessary to help in the task.
6. Make sure all standards and regulations are met, such as health, safety and industry.

The manual should include revision dates, a distribution list, company history and a record of internal audits (Lamprecht 205). The Quality Manual will contain up to 20 requirements that include the following:

Management Responsibility	Quality System
Contract Review	Design Control
Document Control	Purchasing
Purchaser-supplied Product	Product Identification, Traceability
Process Control	Inspection & Testing

Inspection, Measuring & Test Equipment	Inspection & Test Status
Control of Non-Conforming Product	Corrective Action
Handling, Storage, Packaging, Delivery	Quality Records
Internal Quality Audits	Training
Servicing	Statistical Techniques

The Quality Manual can be thought of as a "network of dynamic documents, interrelated like the modules in a computer program" (Weiss 236). Each of the three standards offers up to 20 requirements, as with ISO 9001. ISO 9002 and 9003 have shorter lists of requirements. Each requirement of the standard must contain a broad statement of intent, followed by work instructions and detailed data-recording procedures (Weiss 236). Some registrars have recommended that one efficient way to organize a quality system is through the three-tier approach known as the *quality pyramid* (Lamprecht 62). Tier one states the Scope, Policy and Responsibilities for each of the pertinent ISO requirements (Lamprect 63). Each page of the Quality Manual must contain a revision box indicating the date issued and the version number, as required by ISO 9000. Tier two states departmental procedures and responsibilities in much greater detail than tier one (Lamprecht 71). Each department's functions are explained along with organizational charts showing responsibility and authority (Lamprect 71). Tier three details work instructions and how they are followed (Lamprect 63). For each major step in the tier two level, detailed procedures of work instructions are accompanied by diagrams and decision tables (Weiss 236). A fourth tier, if desired, may include the actual data recording and control forms which document the various steps (Weiss 236).

The technical writer can become familiar with ISO standards and follow the recommended approach in preparing the quality pyramid taking care not to include

excessive information. The information for the Quality Manual can be gathered from a variety of sources including departmental managers, publications, technical experts and observations of people and processes (Alred, Oliu and Brusaw 77).

Each process description contained in the Quality Manual should be written with an opening, a body, and a conclusion, as described in the following basic steps by Michael Keene (337): First and foremost, the job of process writing should be done by a writer familiar with the process, or by one with close access to the process itself (Keene 337). The opening should begin with a brief overview of what the process is, and when, how, where and by whom it is done (337). A concise statement of the main steps in the process may include a flowchart to aid the reader in understanding the process (Keene 338). All machinery, material and supplies required for the process should be defined along with safety warnings, if applicable (Keene 339).

The body of the process description will correspond to the steps in the process and will be fairly simple to write if familiar with the process (Keene 340). Adapting definitions and descriptions appropriate for the audience will be necessary since the reader needs to know how to do the process (Keene 340). The technical writer should explain the process "specifically and accurately but not too technically" (Keene 341).

The conclusion of the process description should repeat the major points and emphasize the importance of the process (Keene 340). Safety warnings should be restated and included with an explanation to the reader on how to evaluate whether or not the process has been followed properly (Keene 340).

As with all manuals, the technical writer's expertise will show in a quality manual which is presented in logical sequence. All necessary details should be included and preceded by simplified instructions (Lee et al. 411). Graphics will serve as an important aid to readers and should be used generously (Lee et al. 412). Careful editing is crucial to ensure process and procedures are correct and all areas meet ISO 9000 standards.

The Internal Audit should follow the completion of the Quality Manual. The company may create its own mock auditing group to review its quality system as an outside auditor might (Weiss 235). Documentation is critical at this point (Weiss 235). The internal audit should prove what the company does is documented and that the company follows the documented plan (Weiss 235). The technical writer may serve as the mock auditor in cross referencing documents and making sure the documentation is complete. All procedures in the areas of production must be checked to assure quality systems are in place and appropriate forms are completed at each phase of production. This would include tracking incoming inventory receipts, production efficiency, outgoing quality inspections and rejection rates. The purpose here is to follow a material or component from the time it is received to the time it is completed, either through the manufacturing or service process, and shipped to the customer. The technical writer, as the mock auditor, can review the total system and note what areas fail to meet the standards as set forth in ISO 9000. At this point, modifications should be made to assure conformance in preparation for the final audit.

When the company is satisfied with its Internal Audit, it may then arrange for Official Registration (Weiss 235). Companies may contact the American Society of Quality Control (ASQC) for the Registrar Accreditation Board of approved ISO registrars and fees associated with the audit. Information regarding ISO guidelines and auditors may be obtained from the U. S. Department of Commerce. Inspectors will rate the system areas from very good to unacceptable (Rothery 239). Areas examined are management policy and organization, design and design change control, procurement, control review, the quality system, documentation control, production, inspection and testing, measuring and test equipment, handling, storage and delivery, audits, training, and housekeeping (Rothery 239 - 244). Results are given to the company.

The final step is responding to the audit, if needed (Weiss 235). If the company fails the audit, it may have to take corrective action to adjust quality elements and make

arrangements for a second audit (Weiss 235). The technical writer will follow up on any corrective action and prepare for re-auditing. In addition, part of the registration process calls for later unannounced audits which the company should be prepared for at all times (Weiss 235). The technical writer will serve in the ongoing process of maintaining this registered status through review and revision of all written policies and procedures. While ISO 9000 does not ensure product quality, it does demonstrate that a company is paying close attention to its manufacturing or service processes.

Writing ability will continue to be the basic competency of a technical writer (Alred, Oliu and Brusaw 6). Preparing a company for ISO 9000 certification will require the technical writer to gain technical knowledge not only through experience, but through "intellectual curiosity" as well (Alred, Oliu and Brusaw 9). While a wide spectrum of general technical knowledge will make the technical writer adaptable to a variety of situations, possessing an interest in technology will, at the very least, lead to enjoyment and success in the technical writing field.

Since technical specialists will be the primary source of information, the technical writer should possess interpersonal skills and be able to work closely with others in preparing for certification (Alred, Oliu and Brusaw 9). Through the various stages of preparation for ISO 9000, the technical writer must collaborate with employees from all areas of the company to develop standards and documentation. Stimulating people rather than pressuring them provides a positive climate. The technical writer must take care not to play the expert or let communication break down. The Society for Technical Communication (STC) lists the following in their Code for Communicators:

- Use Language and visuals with precision.
- Prefer simple, direct expression of ideas.
- Satisfy the audience's need for information, not my own need for self-expression.
- Hold myself responsible for how well my audience understands my message.

- Respect the work of colleagues, knowing that a communication problem may have more than one solution.
- Strive continually to improve my professional competence.
- Promote a climate that encourages the exercise of professional judgment and that attracts talented individuals to careers in technical communication (Alred, Oliu and Brusaw 7).

Critical thinking and solid research skills are other competencies required of technical writers (Alred, Oliu and Brusaw 6). Critical thinking includes determining what is and what isn't important. Locating the right people and information are part of the research process. The technical writer must review and locate inconsistencies in process or process descriptions between departments. Thus, the writer must not only be familiar with ISO 9000 standards and requirements for certification, but also with his or her organization and its manufacturing or service processes.

More and more companies in the U.S. are seeking certification due to increased pressure from overseas (Hockman 38). Consultant Richard Clements says there are three types of companies that should consider ISO 9000 certification (Leeuwenburgh 33). These companies include those whose products are safety or health related and must meet the standards to export; exporting companies whose customers currently or may eventually require certification as a condition of doing business; and companies who see ISO 9000 as a means of enhancing their marketing strategies if and when they enter the global markets (Leeuwenburgh 33). Companies that have not attempted to obtain certification will have difficulty explaining their reasons to customers and "inevitably lose business" (Tattum, 38).

Many companies consider people from every nation and culture as a possible consumer for their developing technology in goods and services (Riney 3). This should increase the requirements for technical writers in both product and service businesses and, at the same time, expand the usual sphere of responsibilities beyond writing and managing

publications. Technical writing was first listed in the *Occupational Outlook Handbook* in 1951 (Alred, Oliu and Brusaw 2). By 1990, the U.S. Bureau of Labor Statistics revealed over 70,000 individuals were employed as technical writers (Alred, Oliu and Brusaw 2). The *Occupational Outlook Handbook* predicts that number will grow significantly: "Demand for technical writers is expected to increase because of the continuing expansion of scientific and technical information and the continued need to communicate it to researchers, corporate managers, sales representatives, and technicians. With the increasing complexity of industrial and scientific equipment, more users will depend on the technical writer's ability to prepare precise but simple explanations and instructions (187)" (Alred, Oliu and Brusaw 3).

For the first time in the history of technical writing, ISO 9000 has provided a direct link between inadequate documentation and lost income (Weiss 238). Whether the technical writer is on staff or acting in the capacity as a free-lance writer or consultant, new opportunites are destined to arise in a worldwide marketplace.

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